



THE IMPACT OF TOBACCO EXCISE REVENUE SHARING (DBH CHT) ON PUBLIC HEALTH WITH THE NUMBER OF CIGARETTES SMOKED AS A MODERATING VARIABLE IN EAST JAVA PROVINCE

Edi Nugroho ¹⁾; Allamanda Titania Harsoyo ^{2)*}; Guntoro Ilyas ³⁾; Cynthia Atika Dewi ⁴⁾; Maria Florensia Siagian ⁵⁾; Rachmad Utomo ⁶⁾

- ¹⁾ edi_4132230001@pknstan.ac.id, Polytechnic of State Finance STAN
²⁾ allamanda_4132230033@pknstan.ac.id, Polytechnic of State Finance STAN
³⁾ guntoro_4132230031@pknstan.ac.id, Polytechnic of State Finance STAN
⁴⁾ cynthia_4132230025@pknstan.ac.id, Polytechnic of State Finance STAN
⁵⁾ maria_4132230017@pknstan.ac.id, Polytechnic of State Finance STAN
⁶⁾ rachmad.utomo@pknstan.ac.id, Polytechnic of State Finance STAN
* corresponding author

Abstract

This study aims to analyze the effect of Tobacco Excise Revenue Sharing Fund (DBH CHT) on public health in East Java Province with the number of cigarettes smoked as a moderating variable. One of the priorities in the allocation of DBH CHT is in the health sector, which is expected to increase the Public Health Index (IKM) with the right allocation. This study uses a quantitative method with secondary data sourced from the Directorate General of Fiscal Balance and the Central Statistics Agency covering the period 2019-2022. The hypothesis in this study was tested using the Multiple Linear Regression model for panel data. The results showed that DBH CHT had a positive and significant effect on IKM in East Java, while the number of cigarettes smoked did not significantly moderate the relationship. This shows that the allocation of DBH CHT is effective in improving public health, although cigarette consumption is still high. This study concludes that improving health facilities and programs funded by DBH CHT play an important role in improving public health, but controlling cigarette consumption is still a challenge.

Keywords: Cigarette, DBH CHT, Health, Tobacco

INTRODUCTION

As one of the largest tobacco producing countries in the world, Indonesia ranks fourth after China, India, and Brazil (FAO, 2023). Tobacco is then processed into various tobacco derivative products, including kretek cigarettes, white cigarettes, cigars, and electronic cigarettes which are included in Other Tobacco Processing Products (HPTL). East Java Province plays an important role in tobacco production with an average contribution of 43.45% of the average total tobacco production in Indonesia (Directorate General of Plantations, 2019). East Java Province contributes around 60% of the total national excise revenue (Disperindag, 2024).

On the other hand, the surge in tobacco production has also driven the increase in cigarette consumption which directly poses a serious threat to public health (He et al., 2022). Afif & Sasana (2019) stated that the number of smokers in Indonesia has increased every year because the consumption of tobacco products by the Indonesian people is very high. Data from the Central Statistics Agency (BPS) shows that the percentage of the population aged 15 years and over who smoke in East Java Province has increased from 27.93% in 2019 to 28.83% in 2023. According to Puspawati et al. (2020), consumption of tobacco products can be the leading cause of premature death in the world because people who consume tobacco products will be exposed to more than 7,000 deadly chemicals, 70 of which are carcinogenic. According to Novianti et al. (2021) only 25% of the dangers caused by cigarette smoke are felt by active smokers while the other 75% are felt by passive smokers. Nizamie & Kautsar (2021) stated that increasing cigarette consumption will lead to increasing socio-economic costs, including cigarette prices, treatment related to the effects of cigarette consumption, and opportunity costs



due to not being able to work. Smoking creates direct externalities through secondhand smoke and fiscal externalities through worsening health, increased medical needs, and decreased productivity of smokers (DeCicca et al., 2022). In many countries, the highest indirect costs are caused by productivity losses due to morbidity and mortality caused by smoking habits in men and middle-aged people (Delipalla et al., 2022).

Yang et al. (2023) demonstrated that cigarette consumption moderates the relationship between mental health conditions, such as depression and anxiety, and smoking cessation intentions, where higher consumption exacerbates health risks by reducing the likelihood of quitting. Similarly, Brandt et al. (2015) found that the number of cigarettes smoked per day moderated the relationship between anxiety sensitivity and nicotine dependence, with heavier smokers showing weaker associations between anxiety sensitivity and smoking-related outcomes, indicating that smoking volume directly impacts health behaviors. Meanwhile, Gwon et al. (2022) highlighted that smoking status moderated the association between mental health issues and poor sleep quality, showing that smokers with moderate mental health problems experienced significantly poorer sleep compared to non-smokers. Overall, these studies show that smoking frequency significantly worsens negative health impacts and affects the overall level of public health.

Excise policy is present as one of the instruments to control cigarette consumption and improve health aspects (Firmansyah et al., 2023). In controlling cigarette consumption, the government has implemented a fiscal policy in the form of Tobacco Product Excise (CHT) through Law Number 11 of 1995 concerning Excise as has been amended with Law Number 39 of 2007. In addition, the policy used by the government to suppress tobacco consumption is to increase taxes on tobacco products (Paraje et al., 2022). However, the cigarette tax policy is one of the challenges for the government due to changes in consumer behavior and developing market dynamics (Kowitt et al., 2022). In fact, many consumers switch to buying illegal cigarettes when the price is increased (Prieger & Kulick, 2018). The cigarette excise policy, which is balanced with efforts to increase public awareness of the dangers of illegal cigarettes, is expected to have positive implications for the quality of public health (Nurzeha & Nashrullah, 2021).

Therefore, the government uses DBH CHT as one of the instruments to reduce the health burden due to cigarette consumption by improving the quality of public health services. In accordance with the mandate of the Minister of Finance Regulation Number 222/PMK.07/2017 concerning the use, monitoring, and evaluation of DBH CHT, programs or activities funded through DBH CHT are prioritized for the health sector, with a minimum allocation of 50% (fifty percent) of the total DBH CHT received by each region. With a large allocation of DBH CHT, especially in East Java as the main tobacco producing region, it is expected to have a significant positive effect on public health. However, the effectiveness of increasing the allocation of DBH CHT in achieving these goals still needs to be studied, especially regarding whether the increase in the budget actually contributes to improving the public health index in the region. In addition, it is important to understand how cigarette consumption as a moderating variable can affect the relationship between DBH CHT allocation and public health.

In previous research, Septian & Djamaluddin (2022) proved that the allocation of DBH CHT had a positive effect on improving health facilities in areas receiving funds. Research by Cameng & Arfin (2020) showed that DBH CHT has not been effective in reducing the prevalence of smokers, especially among young people, even though funds are allocated for the health sector. This study suggests that DBH CHT may not have a direct effect on cigarette consumption behavior. In addition, Waluyo et al. (2024) highlighted that the DBH CHT policy still focuses on the provision of health facilities, without considering the role of cigarette consumption variables that can moderate the effect of fund allocation on health. Many studies



tend to focus on input (fund allocation and improved facilities) but do not evaluate outcomes, namely the impact of DBH CHT allocation on overall public health indicators, especially high cigarette consumption.

There is still a gap in findings from previous studies, this study aims to analyze the effect of DBH CHT allocation on public health in East Java Province and determine whether the number of cigarettes smoked can moderate this effect. The results of this study are expected to contribute to improving the DBH CHT allocation policy and increasing its effectiveness, especially to support public health in the main tobacco producing areas, namely East Java Province.

LITERATURE REVIEW

Research on Tobacco Excise Revenue Sharing Fund (DBH CHT) shows that tobacco excise is a significant source of state revenue, with most of the allocation used to fund programs in the field of public health and welfare. According to the theory of fiscal decentralization by Oates (1972), the distribution of excise revenue sharing funds from the central government to the regions aims to reduce fiscal inequality and increase efficiency in the provision of public services at the regional level. This theory suggests that regional governments better understand the needs of their regions so that they can allocate funds effectively, including to reduce the negative impacts of tobacco consumption on public health.

Negative externalities are also relevant in the discussion of tobacco excise, because cigarette consumption causes greater social costs than benefits (Sitepu, 2016). Cigarettes not only harm active smokers, but also cause health problems for passive smokers. Possible impacts include an increased risk of diseases such as cancer, lung disease, and heart disease that require high medical costs and reduce productivity. The tobacco excise policy aims to internalize the social costs caused by cigarette consumption, so that DBH CHT can be allocated to programs that can overcome these negative health impacts (Nurchahyo, 2020).

Previous research has shown that DBH CHT has a positive impact on improving health facilities in various regions. Septian & Djamaluddin (2022) found that DBH CHT has a significant impact on the number of available health facilities, such as health centers and integrated health clinics, in areas receiving DBH CHT. Increasing the allocation of health workers, improving health infrastructure and facilities, and improving health service standards are identified as key elements in achieving these improvements (Sriyanto, 2023). However, they also noted that this influence is not always evenly distributed across all types of facilities, such as hospitals or health centers, which require greater investment. Based on the literature review, the following hypothesis can be formulated.

H₁: DBH CHT allocation has a positive impact on public health in East Java Province

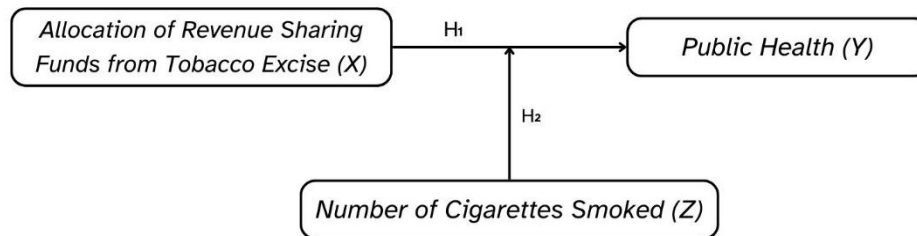
Research by Cameng & Arfin (2020) revealed that, although DBH CHT was able to improve health facilities, the prevalence of smoking was still high, especially among young people. This shows that DBH CHT has not been effective in reducing cigarette consumption, which indicates limitations in the impact of DBH CHT allocation on smoking behavior patterns. Furthermore, consumption theory states that individual consumption behavior is influenced by preferences and available income. The high prevalence of smoking in Indonesia can be attributed to the wide availability of tobacco products and affordable prices. Waluyo et al. (2024) emphasized the importance of allocating DBH CHT to educate the public about the dangers of smoking and support cigarette reduction programs. However, they found that DBH CHT allocation sometimes focuses more on increasing the productivity of the tobacco industry and related industries, which has the potential to conflict with public health goals. As shown by Waluyo dkk. (2024) that the cigarette consumption factor can affect the effectiveness of fund



allocation to improve public health. Based on the literature review, the following hypothesis can be formulated.

H₂: The number of cigarettes smoked strengthens the positive relationship between the DBH CHT allocation and public health in East Java Province

Picture 1. Hypothesis Thinking Framework



Source: The Author processed

METHODS

This type of quantitative research measures research variables based on a theoretical framework that aims to analyze the effect of Tobacco Excise Revenue Sharing Funds (DBH CHT) on public health in East Java Province and evaluate the role of cigarette consumption as a moderating variable in the relationship. The data sources used in this study are secondary data, including DBH CHT allocation data, public health index, and the number of cigarettes smoked. This data was obtained from official publications of government agencies, namely the Directorate General of Fiscal Balance (DJPk) and the Central Statistics Agency (BPS) for the period 2019 to 2022.

Table 1. Sample Selection

CRITERIA	NUMBER
District/City Regional Governments in East Java Province that received DBH CHT allocations	38
Research Period (Year)	4
Total Sample	152

Source: The Author processed

The population of the study was data on DBH CHT allocation, public health index, and the number of cigarettes smoked in East Java Province. The selection of East Java as the research location was based on the high acceptance of DBH CHT in this province, which is one of the largest tobacco producing areas in Indonesia. The sampling technique used was purposive sampling, by selecting district/city data in East Java that had complete information on DBH CHT allocation and public health index during the study period.

The independent variable in this study was DBH CHT which was measured based on the budget allocation value for each district/city in East Java Province. Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Governments regulates the allocation of DBH for Tobacco Excise (DBH CHT) which is 3% of domestic tobacco excise revenues and is then distributed to excise producing regions, tobacco producing regions, and/or other regions which include the province concerned of 0.8%, producing districts/cities of 1.2%, and other districts and cities in the province concerned of 1%.

The dependent variable in this study is the public health index (IKM) which describes the level of public health in the region. IKM covers several dimensions of health, such as life expectancy, infant mortality rate, access to health services, and the number of certain diseases. So this study uses IKM to provide a comprehensive picture of public health in a region.

The moderating variable in this study is the number of cigarettes smoked per year which is used to analyze whether the amount of cigarette consumption by the community can



strengthen the relationship between DBH CHT and the public health index. The data used in this variable is the total number of cigarettes smoked by the population in the age range of 15 years and over.

The hypothesis in this study was tested using the Multiple Linear Regression model for panel data. Multiple linear regression is used by researchers to predict the trend of the dependent variable when there are at least two independent variables (Basuki & Prawoto, 2019). Hypothesis testing is carried out with the following model.

$$IKM_{it} = \alpha + \beta_1 DBHCHT_{it} + \beta_2 BR + \beta_3 DBHCHT * BR + \epsilon_{it}$$

Where:

- IKM = Public Health Index
- DBH CHT = Tobacco Excise Revenue Sharing Fund Allocation
- BR = Number of Cigarettes Smoked
- ϵ = Error
- t = Time
- i = District/City Regional Governments

RESULTS AND DISCUSSION

Descriptive statistical analysis to see the distribution of data from all variables used in this study can be seen in table 2 below.

Table 2. Descriptive Statistics

	IKM	DBHCHT	BTG
Mean	0,795592105	34.655.612	3.557
Standard Error	0,002455128	2.499.219	55
Median	0,81	23.142.991	3.492
Mode	0,81	#N/A	3.806
Standard Deviation	0,030268852	30.812.440	676
Sample Variance	0,000916203	949.406.486.522.927	457.160
Kurtosis	0,013157118	16	1
Skewness	-0,875627926	4	1
Range	0,12	186.944.337	3.913
Minimum	0,72	13.501.025	1.828
Maximum	0,84	200.445.362	5.742
Sum	120,93	5.267.653.026	540.619
Count	152	152	152

Source: Data processed by the author using Excel

Based on descriptive statistical analysis of the distribution of 152 data, the average Public Health Index is 0.80 where Tulungagung Regency, Sidoarjo Regency, Kediri City, and Surabaya City in 2022 have the highest Public Health Index of 0.84 while Bondowoso Regency in 2019-2021 and Probolinggo Regency in 2019 have the lowest Public Health Index of 0.72. The average DBH CHT allocation is 34.655.612 where Pasuruan Regency in 2021 has the highest DBH CHT of 200.445.362 while Batu City in 2019 has the lowest DBH CHT allocation of 13.501.025. The average number of cigarettes smoked is 3.557 where Bangkalan Regency in 2021 had the highest number of cigarettes smoked at 5.742 while Mojokerto City in 2021 had the lowest number of cigarettes smoked at 1.828.

Next, testing is carried out to select the panel data regression estimation technique, namely fixed effect, random effect, or common effect. In determining the best technique, the Chow, Hausman, and Lagrange Multiplier (Basuki & Prawoto, 2019).



Chow Test Results

Table 3. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	176.544684	(37,112)	0.0000
Cross-section Chi-Square	620.615038	37	0.0000

Source: Data processed by the author using E-Views 12

The Chow test is conducted to select an estimation technique between common effect or fixed effect based on the cross-section probability F. If the probability > 0.05, then the appropriate estimation technique is common effect, whereas if the probability < 0.05, then the appropriate model is fixed effect (Savitri et al., 2014). Table 3 shows that the cross-section probability value F is 0.000, meaning that the right estimation technique to choose is Fixed Effect with the Ordinary Least Square (OLS) approach. After this, the Hausman test is carried out.

Hausman Test Results

Table 4. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq.d.f.	Prob.
Cross-section Random	33.973721	2	0.0000

Source: Data processed by the author using E-Views 12

The Hausman test is conducted to select an estimation technique between Fixed Effect with the OLS approach or random effect with the Generalized Least Square (GLS) approach based on the random cross-section probability. If the probability is > 0.05, then the appropriate estimation technique is random effect with the GLS approach, while if the probability is < 0.05, then the appropriate model is Fixed Effect with the OLS approach (Savitri et al., 2020). Table 4 shows that the random cross-section probability value is 0.000, meaning that the appropriate estimation technique to choose is Fixed Effect with the OLS approach. Based on the tests that have been carried out, namely the Chow test and the Hausman test, the best estimation technique is fixed effect. With these considerations, in this study there is no need to conduct a Lagrange Multiplier test.

Classical Assumption Test

Basuki & Prawoto (2019) reveals that in linear regression with the OLS approach, classical assumption tests are carried out in the form of Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity, and Normality tests. In this study, only Multicollinearity and Heteroscedasticity tests were carried out because in further explanation by Basuki & Prawoto (2019) not all classical assumption tests need to be carried out and for OLS only Multicollinearity and Heteroscedasticity are used.

Multicollinearity Test Results

Table 5. Multicollinearity Test Results

	DBHCHT	BTG
DBHCHT	1	0.2175
BTG	0.2175	1

Source: Data processed by the author using E-Views 12

Multicollinearity Test shows the correlation between independent variables with other independent variables. This method has a rule of thumb, namely when the correlation coefficient is above 0.85, it is suspected that there is a multicollinearity problem (Basuki & Prawoto, 2019). Table 5 shows a coefficient of 0.2175 or below 0.85, so it is concluded that there is no multicollinearity problem in this study.



Heteroscedasticity Test Results

Heteroscedasticity test is conducted to show that the test data does not have regression problems such as non-constant variance. Heteroscedasticity testing is conducted to avoid biased OLS estimates. If the significance value is > 0.05 then there is no heteroscedasticity problem. (Basuki & Prawoto, 2019)

Table 6. Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000212	0.001601	-0.132478	0.8948
X1	4.42E-11	4.03E-11	1.097853	0.2746
X2	4.13E-07	4.30E-07	0.961389	0.3384
X1*X2	-1.20E-14	1.09E-14	-1.102529	0.2726

Source: Data processed by the author using E-Views 12

Table 6 shows that the significance value of all variables is more than 0.05, so it is concluded that there are no symptoms of heteroscedasticity in this study.

Hypothesis Test Results

Table 7. The Summary of Hypothesis Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.766018	0.006747	113.5418	0.0000
X1	6.33E-10	1.70E-10	3.730503	0.0003
X2	3.83E-06	1.81E-06	2.113355	0.0368
X1*X2	-4.68E-14	4.58E-14	-1.023790	0.3082

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.003422	R-squared	0.987135
Mean dependent var	0.795592	Adjusted R-squared	0.982499
S.D. dependent var	0.030269	S.E. of regression	0.004004
Akaike info criterion	-7.977776	Sum squared resid	0.001780
Schwarz criterion	-7.162124	Log likelihood	647.3110
Hannan-Quinn criter.	-7.646430	F-statistic	212.9286
Durbin-Watson stat	2.078105	Prob(F-statistic)	0.000000

Source: Data processed by the author using E-Views 12

Based on table 7, the R-squared is 0.987135. This indicates that the independent variables used are able to explain the dependent variable by 98.71%, while the remaining 1.29% is explained by other variables. In table 7, the F-statistic probability value is 0.0000 or below the significance value of 0.05. This means that the model used can be said to be appropriate. The results of data processing in this study obtained the following linear equation.

$$Y = 0.766017545199 + 6.33263316532e-10 * X1 + 3.82755568267e-06 * X2 - 4.68453504684e-14 * X1 * X2 + [CX=F]$$

Impact of DBH CHT Allocation on Public Health in East Java Province

The t-test results on the DBH CHT variable (X1) obtained a calculated t value of 3.730503. This result is greater than the t table, which is 1.975693. The significance value was also obtained at 0.0003 so that it is below 0.05. This means that the DBH CHT variable has a positive effect on the Public Health Index so that H_1 is accepted. Based on data analysis, it was found that the allocation of DBH CHT had a positive and significant impact on the public health index in East Java Province. Areas that received a larger DBH CHT allocation showed a



superior improvement in the public health index compared to areas that received a smaller allocation.

The results of this study are in accordance with the theory of fiscal decentralization which states that decentralization in regional financial management provides greater authority to regional governments to adjust budget allocations according to regional needs (Oates, 1972). Thus, areas receiving DBH CHT can use these funds more effectively to improve public health services, especially in areas with high needs due to the negative impacts of tobacco production and consumption. This finding is in line with research by Yandri et al. (2020) which states that the allocation of DBH CHT can encourage the growth of Gross Regional Domestic Product (GRDP) in the health sector. This finding is also in accordance with research by Septian & Djamaluddin (2022) which shows that DBH CHT plays a role in improving health facilities in areas receiving funds, although its effectiveness varies between types of health facilities.

Overall, the results show that DBH CHT is effective in improving public health, especially through the construction and improvement of health facilities that are expected to reduce the risk of diseases caused by exposure to cigarette smoke. The effectiveness of DBH CHT in improving public health confirms that the allocation of these funds plays a role in accordance with the objectives of fiscal policy to support the welfare of the community in excise-producing areas, which is in accordance with the findings of Cameng & Arfin (2020).

The Role of the Number of Cigarettes Smoked as a Moderating Variable

The results of the t-test on the variable number of cigarettes smoked to moderate the relationship between DBH CHT and the Public Health Index ($X_1 * X_2$) obtained a calculated t value of 1.02379. This result is lower than the t table, which is 1.975693. The significance value obtained is 0.3082 so it is above 0.05. This means that the variables of the number of cigarettes smoked cannot strengthen or weaken the relationship between DBH CHT and the Public Health Index so that H_2 is rejected. The results of the second hypothesis test show that the number of cigarettes smoked does not significantly moderate the relationship between DBH CHT allocation and the public health index. Although cigarette consumption remains high or even increases in some areas, the allocation of DBH CHT still has a positive impact on the public health index. This shows that improving health services funded by DBH CHT can provide benefits to public health, even though cigarette consumption remains high.

These findings suggest that cigarette consumption is not the sole determinant of the effectiveness of DBH CHT utilization to improve public health. Instead, improvements in health facilities and programs funded by DBH CHT, such as public health campaigns and the provision of treatment services for smoking-related diseases, can play an important role in improving overall public health. These results suggest that DBH CHT, through various health programs, can have a significant positive impact even though smoking habits are still high in some areas.

The results of the study are in accordance with research by Gunnara et al. (2024) which states that the tobacco excise management policy in general has been in accordance with the stated objectives but has not been fully effective in reducing cigarette consumption. The test results are in line with research conducted by Cameng & Arfin (2020) which states that the implementation of the earmarking policy has been implemented since 2008, but the results have not shown optimal results in the purpose of imposing excise on tobacco products so that the prevalence of the number of cigarettes consumed by the community remains high. This finding also supports research by Waluyo et al. (2024) which shows that health policies funded by DBH CHT need to consider programs that have a direct impact on public health, especially in areas with high levels of cigarette consumption. Wirawan et al. (2022) in their research emphasized that although tobacco excise revenues have increased, the allocation of DBH CHT has not been



able to cover losses in the health sector due to the less than optimal control of cigarettes in the community.

This study also confirms that efforts to reduce the negative impacts of cigarettes on health are not only focused on reducing consumption, but can also be done through improving comprehensive health services. In this case, DBH CHT functions as a funding instrument that is not only focused on preventive efforts, but also on curative efforts to reduce the impact of smoking habits.

CONCLUSION

Tobacco Excise Revenue Sharing Fund (DBH CHT) has a positive and significant influence on the public health in East Java Province as reflected in the East Java Province Public Health Index (IKM). The results of the study showed that the level of significance of the influence of DBH CHT on public health is indicated by a value of 0.0003. Based on the linear equation obtained, it explains that for every additional allocation of DBH CHT funds of Rp1.00, the Public Health Index variable will increase by 6.33×10^{-10} . In contrast to the results of the analysis of the influence of DBH CHT on public health, the number of cigarettes smoked does not affect the positive relationship between DBH CHT allocation and public health in East Java Province. This study successfully proves the initial hypothesis which states that there is a positive and significant influence between DBH CHT allocation and the public health in East Java Province. However, this study rejects the hypothesis which states that the number of cigarettes smoked strengthens the positive relationship between DBH CHT allocation and public health in East Java Province.

Limitations and Suggestions

This study has several limitations, first, limitations in sample coverage. The sample used in this study is relatively small, namely only based on districts and cities in East Java. The second limitation is the limitations of the variables used in the test. In this case, there are still many other variables that may be traced, especially those related to variables that have a direct impact on the community. Third, this study uses a quantitative approach for the period 2019 to 2022. It is necessary to continue to study the implementation pattern and its impacts in more depth through a qualitative approach.

Due to the limitations of this study, the researcher hopes that further research can expand the research sample so that it can present a wider population condition. In addition, it is hoped that further research can consider other relevant variables. Variables that can be used as moderators between the influence of DBH CHT on the health index are the number of health facilities, the human development index, and the realization of DBH CHT by the Regional Government. This is done so that the research results better describe the actual conditions. It is possible to add qualitative aspects that can strengthen the arguments in this study. Based on the results of the research that has been conducted, there are several recommendations given to the government, especially to the Directorate General of Fiscal Balance (DJPK) of the Ministry of Finance in increasing the transparency of the realization of DBH CHT, in addition it is suggested to the regional government to expand the health program funded by DBH CHT by adding a program to reduce cigarette consumption. This recommendation is expected to help DJPK and regional governments to increase the effectiveness of the use of DBH CHT, especially in health programs in the regions.

Acknowledgement

We extend our heartfelt gratitude to the Polytechnic of State Finance STAN for the invaluable support and encouragement, which greatly contributed to the successful completion of this research.

**REFERENCES**

- Afif, M. N., & Sasana, H. (2019). Pengaruh Kemiskinan, Pendapatan per Kapita, Harga Pokok, Produksi Rokok terhadap Konsumsi Rokok di Indonesia. *Diponegoro Journal of Economics*, 1, 88–96.
- Basuki, A. T., & Prawoto, N. (2019). Analisis Regresi dalam Penelitian Ekonomi dan Bisnis. PT Rajagrafindo Persada, 1–239.
- BPS. (2023). Persentase Penduduk Usia 15 Tahun Ke Atas yang Merokok dalam Sebulan Terakhir Menurut Kabupaten/Kota dan Kelompok Umur di Provinsi Jawa Timur, 2022. In Badan Pusat Statistik. <https://jatim.bps.go.id/id/statistics-table/1/Mjk4NiMx/persentase-penduduk-usia-15-tahun-ke-atas-yang-merokok-dalam-sebulan-terakhir-menurut-kabupaten-kota-dan-kelompok-umur-di-provinsi-jawa-timur--2022.html>
- Brandt, C. P., Bakhshaie, J., Garey, L., Schmidt, N. B., Leventhal, A. M., & Zvolensky, M. J. (2015). The moderating role of smoking amount per day on the relations between anxiety sensitivity, smoking dependence, and cognitive-affective aspects of smoking among treatment seeking smokers. *Addictive Behaviors Reports*, 1, 26–33. <https://doi.org/10.1016/j.abrep.2015.03.006>
- Cameng, D. K. J., & Arfin. (2020). Analisis Penerapan Kebijakan Earmarking Tax Dari Dana Bagi Hasil Cukai Hasil Tembakau Terhadap Kesehatan Masyarakat. *Simposium Nasional Keuangan Negara*, 479–501. <https://jurnal.bppk.kemenkeu.go.id/snkn/article/view/561/298>
- DeCicca, P., Kenkel, D., & Lovenheim, M. F. (2022). The Economics of Tobacco Regulation: A Comprehensive Review†. *Journal of Economic Literature*, 60(3), 883–970. <https://doi.org/10.1257/jel.20201482>
- Delipalla, S., Koronaoui, K., Al-Lawati, J. A., Sayed, M., Alwadey, A., AlAlawi, E. F., Almutawaa, K., Hussain, A. H. J., Al-Maidoor, W., & Al-Farsi, Y. M. (2022). The introduction of tobacco excise taxation in the Gulf Cooperation Council Countries: a step in the right direction of advancing public health. *BMC Public Health*, 22(1), 1–8. <https://doi.org/10.1186/s12889-022-13190-0>
- Directorate General of Plantations. (2019). *Statistik Perkebunan Indonesia 2018-2020*. Kementerian Pertanian, 1–82. www.ditjenbun.pertanian.go.id
- Disperindag. (2024). Jadi Produsen Tembakau Terbesar Nasional, Nilai CHT Jatim Capai Rp129,96 Triliun. <https://www.liputan6.com/surabaya/read/5653534/jadi-produsen-tembakau-terbesar-nasional-nilai-cht-jatim-capai-rp12996-triliun>
- FAO. (2023). Top 10 Countries Production of Unmanufactured Tobacco. https://www.fao.org/faostat/en/#rankings/countries_by_commodity
- Firmansyah, D., Putra, H. S., & Miqdad, M. (2023). Analysis of Revenue Sharing Fund of Tobacco Products Excise Governance in Jember Regency. *Himalayan Economics and Business Management*, 1, 156–162.
- Gunnara, H., Daswito, R., Martias, I., & Harianja, R. R. (2024). Tobacco Tax Policy and Its Impact on Health Finance in Different Countries : A Systematic Review. 2(2), 63–76.
- Gwon, S. H., Cho, Y. I., Lee, H. J., Paek, S., & Matthews, P. A. (2022). Moderating Effects of Smoking Status on the Relationships Between Mental Health Problems and Poor Sleep. *SAGE Open*, 12(1). <https://doi.org/10.1177/21582440221082140>
- He, L., Basar, E., Wiers, R. W., Antheunis, M. L., & Kraemer, E. (2022). Can chatbots help to motivate smoking cessation? A study on the effectiveness of motivational interviewing on engagement and therapeutic alliance. *BMC Public Health*, 22(1), 1–15. <https://doi.org/10.1186/s12889-022-13115-x>
- Kowitt, S. D., Anshari, D., Orlan, E. N., Kim, K. S., Ranney, L. M., Goldstein, A. O., & Byron, M. J. (2022). Impact of an e-cigarette tax on cigarette and e-cigarette use in a middle-



- income country: A study from Indonesia using a pre-post design. *BMJ Open*, 12(5), 1–8. <https://doi.org/10.1136/bmjopen-2021-055483>
- Nizamie, G. V., & Kautsar, A. (2021). Analisis Faktor-Faktor Yang Mempengaruhi Konsumsi Rokok di Indonesia. *Kajian Ekonomi Dan Keuangan*, 5(2), 158–170. <https://doi.org/10.31685/kek.v5i2.1005>
- Novianti, K. D. P., Jendra, K. Y. D., & Wibawa, M. S. (2021). Diagnosis Penyakit Paru pada Perokok Pasif Menggunakan Metode Certainty Factor. *INSERT : Information System and Emerging Technology Journal*, 2(1), 25–34. <https://doi.org/10.23887/insert.v2i1.35122>
- Nurchahyo, M. A. (2020). Analisis Penyerapan Dana Bagi Hasil Cukai Hasil Tembakau 2017-2019. *Simposium Nasional Keuangan Negara 2020*, 464–478.
- Nurzeha, S. Y., & Nashrullah, M. F. (2021). Legal Problems of Cigarette Excise Enforcement In Province East Java. *Et-Tijarie: Jurnal Hukum Dan Bisnis Syariah*, 09(1), 48–61.
- Oates, W. E. (1972). *Fiscal Federalism*. Edward Elgar Publishing.
- Paraje, G., Stoklosa, M., & Blecher, E. (2022). Illicit trade in tobacco products: recent trends and coming challenges. *Tobacco Control*, 31(2), 257–262. <https://doi.org/10.1136/tobaccocontrol-2021-056557>
- Peraturan Menteri Keuangan Nomor 222/PMK.07/2017 Tentang Penggunaan, Pemantauan, Dan Evaluasi Dana Bagi Hasil Cukai Hasil Tembakau (2017).
- Peraturan Menteri Keuangan Republik Indonesia Nomor 12/PMK.07/2019 Tentang Rincian Dana Bagi Hasil Cukai Hasil Tembakau Menurut Daerah Provinsi/Kabupaten/Kota Tahun Anggaran 2019 (2019).
- Peraturan Menteri Keuangan Republik Indonesia Nomor 13/PMK.07/2020 Tentang Rincian Dana Bagi Hasil Cukai Hasil Tembakau Menurut Daerah Provinsi/Kabupaten/Kota Tahun Anggaran 2020 (2020).
- Peraturan Menteri Keuangan Republik Indonesia Nomor 2/PMK.07/2022 Tentang Rincian Dana Bagi Hasil Cukai Hasil Tembakau Menurut Daerah Provinsi/Kabupaten/Kota Tahun Anggaran 2022 (2022).
- Peraturan Menteri Keuangan Republik Indonesia Nomor 230/PMK.07/2020 Tentang Rincian Dana Bagi Hasil Cukai Hasil Tembakau Menurut Daerah Provinsi/Kabupaten/Kota Tahun Anggaran 2021 (2020).
- Prieger, J. E., & Kulick, J. (2018). Cigarette Taxes and Illicit Trade in Europe. *Economic Inquiry*, 56(3), 1706–1723. <https://doi.org/10.1111/ecin.12564>
- Puspawati, P. R., Kristina, S. A., & Wiedyaningsih, C. (2020). Dampak merokok terhadap kematian dini akibat kanker di Indonesia: estimasi years of life lost (YLL). *J Majalah Farmaseutik*, 16(1), 101–106. <https://doi.org/10.22146/farmaseutik.v16i1.49790>
- Savitri, C., Faddila, S. P., Irmawartini, Iswari, H. R., Anam, C., Syah, S., Mulyani, S. R., Sihombing, P. R., Kismawadi, early R., Pujiyanto, A., Mulyati, A., Astuti, Y., Adinugroho, W. catur, Imanuddin, R., Kritia, Nuraini, A., & Siregar, M. T. (2014). Statistik Multivariat Dalam Riset. In *Widina* (Vol. 11, Issue 551). <http://webs.ucm.es/info/biomol2/Tema01.pdf%0Ahttp://dx.doi.org/10.1016/j.addr.2009.04.004>
- Septian, T., & Djamaluddin, S. (2022). Pengaruh Kebijakan Earmarking Cukai Hasil Tembakau Terhadap Pelayanan Kesehatan Masyarakat Di Indonesia. *Jurnal Perspektif Bea Dan Cukai*, 6(2), 243–257. <https://doi.org/10.31092/jpbc.v6i2.1692>
- Sitepu, E. M. P. (2016). Penerapan Earmarking Cukai Hasil Tembakau di Indonesia: Regulasi dan Konsep Ideal. *Kajian Ekonomi Dan Keuangan*, 20(3), 241–259. <https://doi.org/10.31685/kek.v20i3.200>
- Sriyanto, A. (2023). OPTIMIZING REVENUE SHARING FROM TOBACCO TAX IN INDONESIA. 12(04), 2125–2138.
- Undang-Undang Nomor 1 Tahun 2022 Tentang Hubungan Keuangan Antara Pemerintah Pusat



- Dan Pemerintahan Daerah (2022). <https://doi.org/https://peraturan.bpk.go.id/Details/195696/uu-no-1-tahun-2022>
- Undang-Undang Republik Indonesia Nomor 39 Tahun 2007 Tentang Perubahan Atas Undang-Undang Nomor 11 Tahun 1995 Tentang Cukai (2007).
- Waluyo, C. P. H., Karjoko, L., & Subekti, R. (2024). Efektivitas Penggunaan Dana Bagi Hasil Cukai Hasil Tembakau (DBH-CHT) Sebagai Instrumen Pemulihan Kesehatan Di Kota Kediri. *Terang: Jurnal Kajian Ilmu Sosial, Politik Dan Hukum*, 1(2), 43–53. <https://doi.org/10.62383/terang.v1i2.200>
- Wirawan, A., Saraswati, R., Sa'dah, N., & Sinaga, R. Y. (2022). E-PARTICIPATION IN THE MANAGEMENT OF TOBACCO EXCISE PRODUCTION SHARING FUNDS: AN INITIATION TO STRENGTHEN THE PRINCIPLES OF DECENTRALIZATION IN INDONESIA. *Scientia Business Law and Review*, 1(11), 21–36.
- Yandri, P., Budi, S., Sujatna, Y., & Masduki, U. (2020). Revenue Sharing Fund of Tobacco Products Excise and. 7(33), 104–114.
- Yang, X., Zhang, L., Lin, H., Lin, H., Cao, W., & Chang, C. (2023). Psychiatric symptoms and intentions to quit smoking: How regularity and volume of cigarette consumption moderate the relationship. *Tobacco Induced Diseases*, 21, 1–10. <https://doi.org/10.18332/tid/163258>